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CUTWORMS AND METHODS FOR CONTROLLING THEM.

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Cutworms may readily be classed among our more injurious species of insects. Probably every farmer and vegetable grower has had occasion to know that a great amount of damage is done every year by this common pest, and that it is safe to say that only a small number of people take any radical steps to prevent this injury, whereas a few simple precautions might save much time and money. Cutworms working silently in the night often do a vast amount of damage before they are discovered.

In order to successfully combat an insect, it is necessary to know in general, at least, the life history and characteristics of the insect, which usually furnishes a clue to the vulnerable points in its life when it can be most easily suppressed. It is the purpose of this circular to point out certain habits and characteristics of Cutworms, and to give the best known methods by means of which they may be controlled.

Life History.

The moths of Cutworms appear during the months of July, August and September. Eggs are deposited soon after their first appearance, on leaves, stones and rubbish, and sometimes on trees. A grassy sod may be selected as a depositing ground, or any place where there is an abundance of vegetation. The eggs are seldom laid on or in the ground. The little Cutworms hatch in a short time and begin at once to feed on any succulent vegetation at hand. They are now so small and the food usually so abundant that no notice is taken of their presence. By the time cold weather sets in the Cutworms are in different stages of maturity, from one-half to nearly full grown. They now bury themselves in the ground or crawl under dead vegetation or stones, making an oval cell in which they pass the winter. So far no material damage has occurred.

In the spring, however, the land is plowed, and planted with seeds or young plants. The Cutworms now emerging from winter quarters with voracious appetites after their long fast, finding nothing else on the land, immediately attack the young tender seedlings with often

very disastrous results. After feeding for a few weeks, the Cutworms reach maturity. They then go into the ground, or under rubbish, and form smooth oval cells in which they change to the chrysalis or pupa stage, (shown in figure I.) from which moths emerge in about one month, ready to deposit eggs for next year's brood. In some instances there are two broods each year, and the moths may appear as late as November or December. In rare cases, Cutworms pass the winter in the pupa stage, or even as adults.

Description and Habits.

Several species of Cutworms occasion more or less damage to crops each year. The adults of all our Cutworms are moths which belong to the family Noctuidæ, meaning, owl moths or night flyers, and for this reason, they are seldom seen except in the evening when some of them may be attracted to lights. During the day they rest at the base of plants, or on stones or rubbish in obscure places. When disturbed they fly with a rapid darting movement, but soon settle

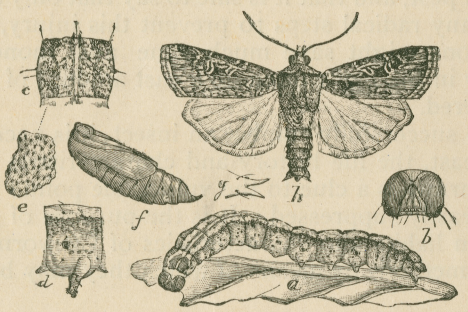

Figure I.—The Granulated Cutworm; a, larva feeding; f, pupa; h, moth—all natural size, (after Riley).

down again. The moths range in size from one and one half to two and one half inches in wing expanse; the color of the front wings may be dark brown or grey with irregular markings; the hind wings are always lighter than the forewings. (See figures I. and II.) Cutworms have naked bodies, nearly always tapering a little toward the caudal end; head and first thoracic segment, redish-brown and horney. Cutworms are supplied with eight pairs of legs, the three pairs in front are jointed and horney, the five pairs behind (prolegs) short and stout. In color they may vary from dirty green or gray to dirty brown. They are nearly always marked with longitudinal dark stripes, and occasionally with oblique blotches and black dots. When full grown, Cutworms range from one to one and one half, and rarely two inches in length. When disturbed, many species assume the position shown in figure II. These little rascals have the unfortunate habit of eating partly through the base of young plants, such as cabbages, tomatoes, etc., and of going from one plant to the next, so that one Cutworm

may destroy several plants in one night. During the day they may be found buried in the soil at the base of the plants, or only a few inches away, about one half inch under the surface.

Preventive Measures and Remedies.

Clean Culture.—As stated under the head of "life history," the moths may deposit on a variety of plants. If a crop is removed in midsummer or early fall, and the land allowed to grow a crop of weeds and grass, it furnishes an ideal place for the moths to deposit eggs, and it also furnishes plenty of food on which the young Cutworms may feed. Furthermore, land covered with weeds and rubbish furnishes good shelter under which the partly grown Cutworms may pass the winter. In order to prevent land from becoming infested with Cutworms, it should be kept as free from weeds, rubbish and the like as

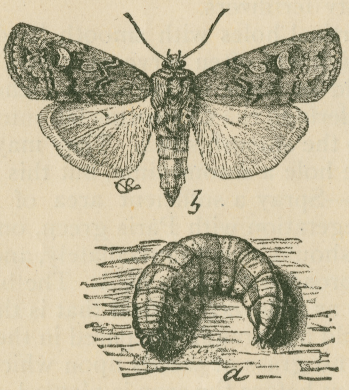

Figure II.—The Dark-sided Cutworm; a, larva; b, moth—both slightly enlarged, (after Riley).

possible. Rubbish and weeds that are apt to occur along fences, and in fence corners should be cleaned up and burned, as such places afford shelter in which many insects hibernate. Much vexatious trouble may be prevented by keeping all parts of a farm free from heaps of rubbish, decaying vegetation and brush that may harbor insects in their early stages.

Deep Fall Plowing:—This method against Cutworms, and at the same time against all grubs in the soil, has been practiced with more or less success for a long time. A field that is known to be infested with Cutworms should be deeply plowed early in the fall, and left fallow for the remainder of the season. By this method many moths will be prevented from depositing eggs; and all young Cutworms that have hatched from eggs previously deposited will be buried, and thus perish, or else they will starve for lack of food.

Late Fall or Early Winter Plowing:—In case early fall plowing is not practicable, very late fall or early winter plowing will do nearly as well. At this time the partly-grown Cutworms have gone into winter

quarters, and when their cells are broken, they are exposed to the action of freezing and thawing, and perish in large numbers, as they cannot now adapt themselves to circumstances.

Use of Salty Fertilizers:—Under this head may be mentioned kainit which is the potash salt most commonly used against insects. All grubs and worms are susceptible to the action of salts, even when applied as a fertilizer, but it must be used at the proper time to obtain the best results. This time is in the fall, when the ground has just been plowed, and is bare of all vegetation, or in the spring, just before or after the seed is sown. Applied at such times, it is just as beneficial as a fertilizer, and will kill many more insects than if applied when a crop is growing on the land.

One point to be borne in mind is this: If a thousand pounds of kainit is to be used, it should be applied all at once, for if used a little at a time it will prove ineffectual against Cutworms. The same applies to the use of all salty fertilizers.

Trapping:—Vertical holes with smooth hard sides, made with a dibble or walking stick will often serve as a trap for Cutworms. One or more holes should be made within a few inches of each plant. In their nocturnal wanderings the Cutworms fall into these holes, and are not able to crawl up the smooth sides. They may be killed by thrusting the stick into the hole a second time, but this is hardly necessary.

Poisoned Bait:—Spray a sufficient area of succulent clover or some other green vegetation with Paris green, one pound to fifty gallons of water. This should be cut immediately, and distributed in small heaps, or scattered broadcast over a field. The best way to make use of this poison bait is as follows: A field that is thought to be infested with Cutworms should be carefully prepared in the winter for the crop, taking care to leave no grass or weeds upon which the Cutworms can feed. Then a few days before the crop is planted, or just after the seed is sown, place the poisoned bait on the field in rows, or throw it out broadcast. By placing in little heaps or pellets, the bait will keep fresh for a longer time. Finding no other green food, the Cutworms will devour the poisoned herbage, and thus nearly every Cutworm will be destroyed before the crop is above ground.

Another poisoned bait that is eagerly eaten by Cutworms is made by mixing fifty pounds of bran with one pound of Paris green. These should first be mixed dry, and then moistened with enough water to make the mixture stick together. A quart of molasses may be added to sweeten it. Dr. J. B. Smith says that this bait will be eaten by Cutworms in preference to the plants. For crops such as cabbages and tomatoes, a spoonful of poisoned bran placed beside each plant will poison nearly every Cutworm.

Always, if possible, place poisoned bait in a field just before night, as then it will be fresh and more acceptable to the Cutworms. Fowls should be kept from fields while the poisoned bran bait is exposed; otherwise they may be poisoned.